

March 17, 1964

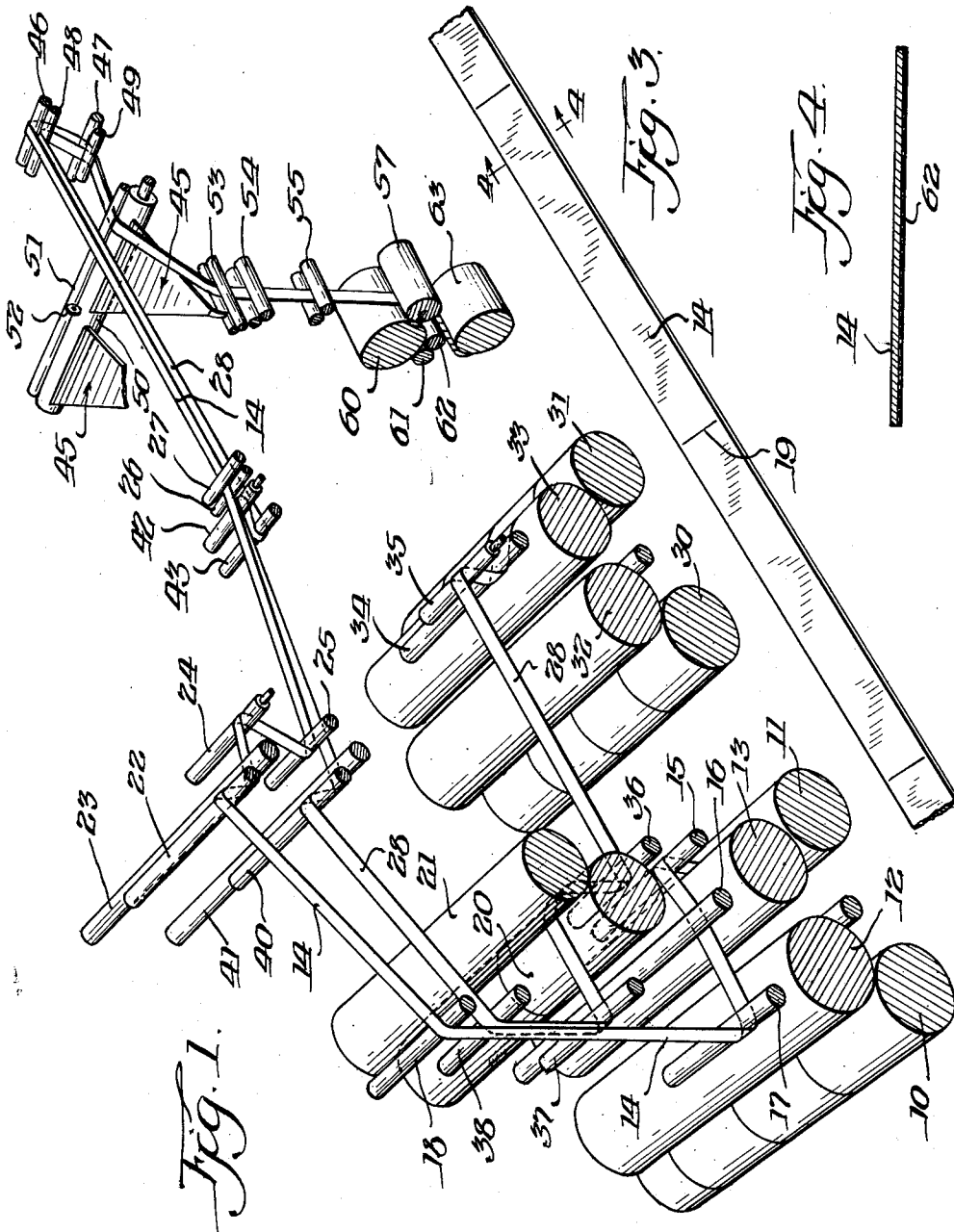
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3,125,335

WEBBING SYSTEM USING PREPRINTED TAPE

Filed May 2, 1962

3 Sheets-Sheet 1



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Fig. 2.

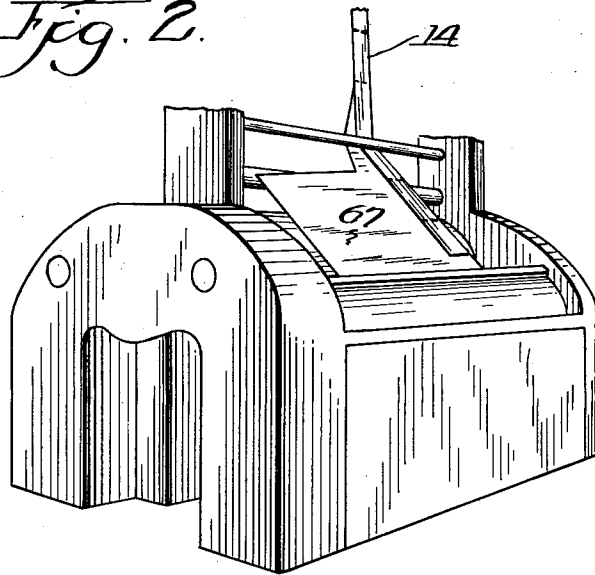
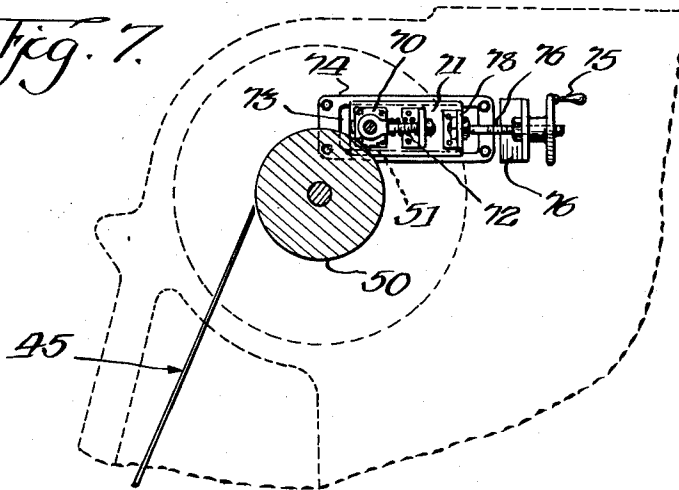


Fig. 7.



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Fig. 5.

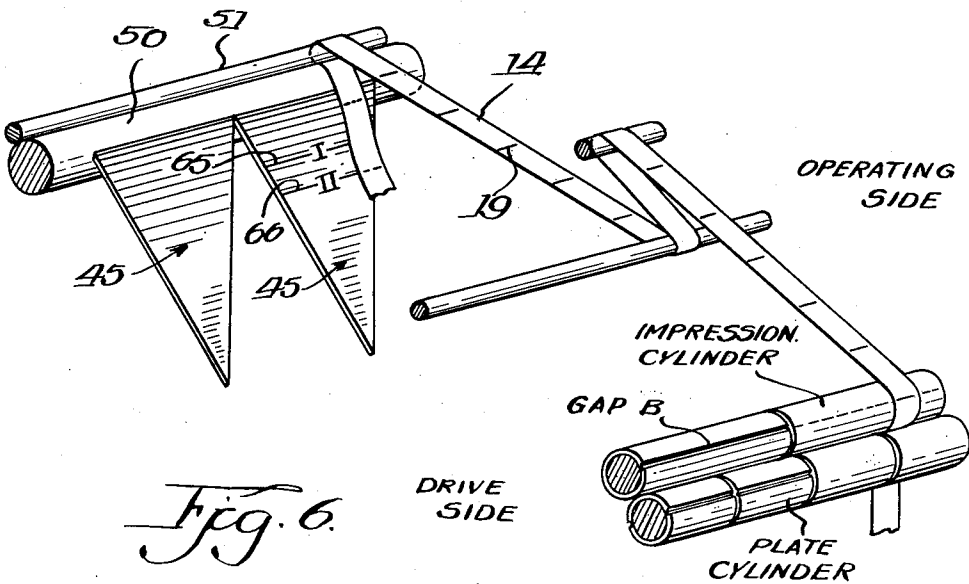
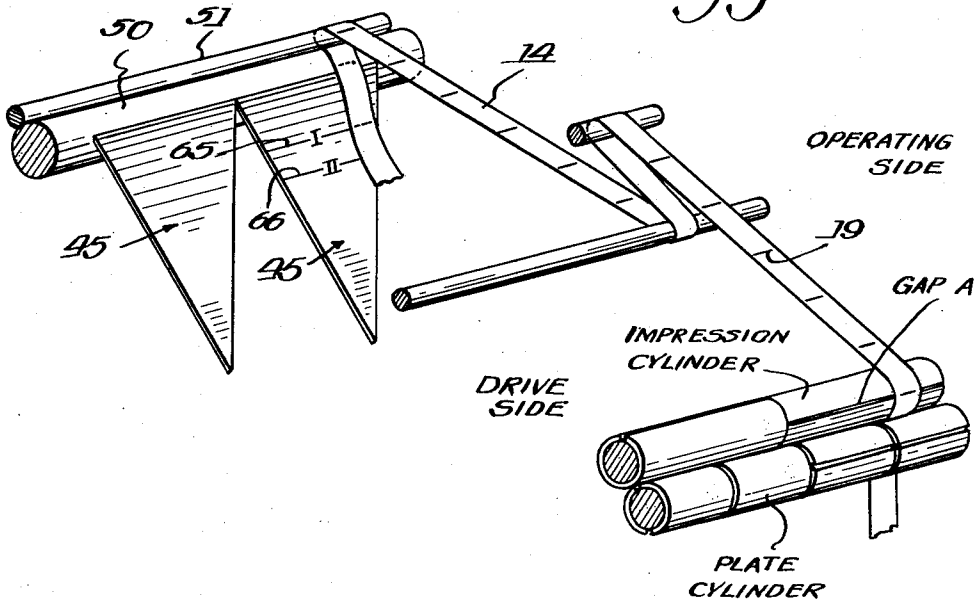


Fig. 6.

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WEBBING SYSTEM USING PREPRINTED TAPE

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7 Claims. (Cl. 270-5)

The invention relates to a new and improved webbing system employing preprinted tape for webbing a rotary printing press during the make-ready period and which will additionally have utility in rewebbing the press following a web break.

The webbing of a rotary printing press such as a press comprising printing units and folding and cutting mechanism for printing newspapers and the like is one of the last operations performed during the make-ready period. Each press must be made up before the web can be led in. Heretofore during the webbing period the entire crew for operating the presses for printing the several webs of the newspaper were either actively involved with webbing the presses, or the crew was unproductive because the running webs were being compensated with respect to the press and folder by trial runs. Also, the webbing method as heretofore practiced involved the webs directly which were led over the proper rollers and compensators from the press unit to the folder.

The webbing method of the invention is aimed primarily at webbing a press during the make-ready period, which will simplify and thus materially reduce the time required for the webbing operation.

The system contemplates the employment of tape which is preferably preprinted with marks corresponding to the page length cut-off for the press on which the tape is to be used. The tape is led through the web path from the printing units to the folder, and the same is compensated with respect to marks on the press and on the folder without inching or running the press. When attached to the web at the unit the tape becomes an extension of the web. All of the tapes can be pulled in at the same time to lead the attached webs to the folder.

Based on the foregoing an object of the invention is to provide a new and improved webbing system for a web printing press which will employ tape that is attached to the web to form an extension of the web after it has been passed over the proper rollers and compensators included in the web path from the units to the folder. By pulling in the tapes the printing press is automatically webbed. A major advantage of the present system resides in the fact that the tape can be placed in position while the other make-ready operations are being performed.

Another object of the invention is to provide a webbing system as described which will employ tape that is preprinted on one surface with marks corresponding to the cut-off length of the printed page and wherein such marks are employed for registering the tape with reference marks.

Another object of the invention is to provide a webbing system as described wherein the tape employed will have a dry glue backing on the surface opposite the printed registration marks. The glue backed tape is relatively easy to attach to the web and the gluing of the same to the web does not require any additional equipment.

Another object is to provide a webbing system for webbing a press wherein the web can be precompensated so that a material reduction in paper waste is made possible. Trial runs for compensation purposes are much reduced, since the tapes pull in all of the webs in near perfect compensation at the same time.

Another object of the invention resides in the provision of a webbing system based on the use of pre-

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printed tape for the purpose described, and which may have the additional utility of circumferentially pre-registering spot or process color printing between units and between half decks. Also, since the tape is stronger than the paper web, the chances of a web break or torn lead is reduced while threading the tape through the units, and further since the tensioning system can be applied to the paper rolls, the web can be maintained taut as it is pulled in, thereby reducing the chances of a web breaking while leading in the web.

With these and various other objects in view, the invention may consist of certain novel features of construction and operation, as will be more fully described and particularly pointed out in the specification, drawings and claims appended thereto.

In the drawings which illustrate an embodiment of the device and wherein like reference characters are used to designate like parts:

FIGURE 1 is a fragmentary perspective view of several web printing units including the rollers and compensators having location in the web path and which illustrates the webbing system of the invention;

FIGURE 2 is a perspective view of a printing unit showing the preprinted tape of the invention in attached relation to a web as it leaves a unit;

FIGURE 3 is a perspective view of a length of tape showing preprinted registration marks on the same for compensation purposes;

FIGURE 4 is a sectional view of the tape taken transversely of the same on line 4-4 of FIGURE 3;

FIGURES 5 and 6 are perspective views illustrating the manner of lining up the marks on the tape with reference marks on the press and former; and

FIGURE 7 is an end elevational view showing the pressure roller for gripping the tape between the same and the drag roller of the former.

In FIGURE 1 lead-in tapes are shown in combination with web leading rollers, compensator rollers, a web former, a folder and a color deck for two printing press units, each having a pair of printing couples between which a web is passed for the printing operation. Referring first of all to the left hand unit, the numerals 10 and 11 indicate the plate cylinders, and 12 and 13 indicate the impression cylinders, respectively. The tape 14 is shown as extending from the nip between impression cylinder 13 and the plate cylinder 11 in an upward direction to pass around the web leading rollers 15, 16, 17 and 18, the last roller being located above the color deck comprising the plate cylinder 20 and the impression cylinder 21. Accordingly, the paper web from the printing couple 11, 13 does not pass through the rollers of the color deck. Additional web leading rollers 22 and 23 are provided and the tape 14 is passed around the same, and then the tape is passed over the compensator roller 24 and under the roller 25. From said roller 25 the tape is passed between the two rollers 26 and 27.

The tape 28 is associated with the plate cylinder 31 of the right hand printing unit wherein the numerals 30 and 31 indicate plate cylinders, and the numerals 32 and 33 indicate impression cylinders. From the plate cylinder 31 the tape 28 passes under roller 34 and over the compensator roller 35. Web leading rollers 36 and 37 are provided for leading the paper web, and thus the tape, between the plate and impression cylinders of the color deck. The tape passes over rollers such as 38 and 40, under the roller 41, and then over the compensator roller 42. From said roller the tape passes around the web leading roller 43 so that the tape is directed toward the former 45. The former performs the function of folding the printed web longitudinally.

It will be observed that both tapes 14 and 28 are now

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in approximate alignment vertically and that the tapes extend over, that is, above the former 45. The tape 14 passes around the pair of rollers 46 and 47, whereas tape 28 passes around rollers 48 and 49. These rollers reverse the direction of the tapes and present the same in overlapping relation to the top former roller 50 which engages the tapes between the same and the releasable pressure roller 51. A slitter 52 is located between the two formers 45 as best shown in FIGURE 1. Since the function of the former 45 is to fold the webs longitudinally, it will be observed that the tapes pass over the angular edge of the plate of the former which directs the tapes downwardly between the pairs of rollers 53, 54 and 55. From the rollers 55 the tapes extend to the cutting knife carried by the cutting cylinder 57. It is not necessary to extend the tapes beyond the web cutting knife since the gap in the impression cylinders and the cutting knife comprise the two marks on the printing apparatus with which the compensating marks on the tape must be registered. However, in actual operations of the press units the webs pass between the pair of rollers 55 and then between the cutting cylinder 57 and the collecting cylinder 60. Thus the webs are cut into sheets of a length for the particular press and which correspond to the compensating marks on the tape. Immediately after the sheets are cut they are folded by the cylinders 61 and 62 and delivered by cylinder 63, all in the manner well known and understood in the art.

FIGURE 3 shows a length of tape such as 14, the same having marks 19 thereon and which are spaced the length of a sheet for the particular press with which the tapes are to be used. The marks extend across the tape and certain marks are registered with the gap in the impression cylinder and with reference marks on the former 45. After registration of the tape the compensator roller 24 for tape 14 and the compensator rollers 35 and 42 for the tape 28 are adjusted to take up slack in the tapes. For initially webbing a press, tape which has been pre-printed with the registration marks thereon will be used. However, for rewebbing the press in the event of a web break, it is not required that the tape include the pre-printed registration marks.

The surface of the tape opposite the pre-printed registration marks preferably has a dry glue backing. Thus it is only necessary to wet the glue backing for attaching the tape to the paper web for a webbing operation. If plain tape were employed, then a glue pot would have to be provided at each tape supply location. The glue would be applied to the tape or to the web and the attachment made. Also, it is possible to employ masking tape for securing the webbing tape to the web. However, it has been found that the glue backed tape is relatively easy to apply to a web and is the least expensive. In addition, such tape requires no additional equipment around the press room.

The tape is preferably of paper, since a paper tape can be easily torn, and the lower cost of paper permits it to be thrown away after being used for one operation. Cloth tape would be considerably more expensive, and would not lend itself to easy tearing, but would have to be cut. The paper used for the tape can be heavy kraft paper and the same should be as strong or stronger than the web to minimize tearing of the tape during the webbing operation.

Before the tapes can be pulled in, the press must be in a position such as will permit the tapes to be registered. Three reference points are provided for registering the tapes and for compensating the webs regardless of the length of the web path. These reference points have been established as best shown in FIGURES 5 and 6. One reference mark comprises the gap in the impression cylinder. The other two marks, namely 65 and 66 are located on the former 45. The mark 65 is placed on the former a given number of sheet cutoff lengths from the knife in the cylinder 57, with the knife positioned for cutting as

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shown. Mark 66 is located on the former a half sheet length below the mark 65.

Referring to FIGURE 5 it will be observed that the gap A in the impression cylinder on the operating side of the press is visible to the operator and thus the tape 14 can be registered with the gap by having a registration mark on the tape positioned in alignment with the said gap. The other end of the tape 14 has a registration mark in register with the mark 65 on the former 45. In FIGURE 6 it will be understood that the gap B in the impression cylinder on the drive side of the press is angularly displaced 90 degrees from the gap A previously described as visible in FIGURE 5. It is necessary to web a press from the operating side. Accordingly the tape is registered by eye with the said gap B in the impression cylinder on the drive side of the press as illustrated in FIGURE 6 and at the opposite end the tape has a registration mark in registered relation with mark 66 on former 45. It has been previously explained that the mark 66 was displaced below mark 65 a distance equal to one-half a page length and thus this takes care of the 90 degree angular displacement of the gaps in the impression cylinder.

FIGURE 2 shows the manner of forming the end of the web 67 into a cut or torn tapered shape and to which is attached the end of a tape such as 14 having the registration or compensation marks thereon, all as described. However, before the web can be pulled in by pulling the tapes, the said tapes must be engaged at the top roller 50 of the former. The pressure roller 51 is spring energized in a direction toward said top roller 50 as best shown in FIGURE 7. The respective ends of the said pressure roller 51 are journaled in members 70 which are slidable in the slide 71, the coil spring 72 maintaining the members against a forward stop such as 73. The slide 71 is in turn supported by the fixed base member 74 for sliding movement. The adjustment handle 75 and the threaded shaft 76 are mounted for rotation by the fixed flange support 77. The threaded shaft has threaded connection with the slide at 78. Thus by rotation of the adjustment handle 75 and shaft 76, the slide can be moved to move the pressure roller into pressure contact with the top former roller 50 or the pressure roller can be spaced therefrom.

When the pressure roller is separated and spaced from roller 50 the tapes can be passed between the rollers. Thus by closing the pressure roller the tapes which have been placed between the rollers are engaged. The compensators can now be actuated to take up any slack in the tapes and the printing press unit is ready for pulling in the webs to complete the webbing operation.

The system of webbing a press by using the pre-printed tapes of the invention makes possible a considerable reduction in make-ready time, since the press can be pre-webbed while the other make-ready operations are being performed. Also, a reduction in waste as regards the webs is possible because the tapes pull in the webs in near perfect compensation all at the same time. Heretofore, since the webs were not compensated, the press was running while the compensating operation was taking place and which produced a quantity of printed waste, all of which has been eliminated by the present webbing system. A reduction in the time a press is rendered inoperative due to web breaks is also possible with the present webbing system, since the tapes can be lead through the press while a new lead is being torn in the reel room. It is also possible with the use of the present tapes for webbing a press to circumferentially pre-register spot and process color between printing press units and between such units and half decks. Tests have shown that the color registration time can be reduced by approximately fifteen percent.

The invention is not to be limited to or by details of construction of the particular embodiment thereof illustrated by the drawings, as various other forms of the

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device will, of course, be apparent to those skilled in the art without departing from the spirit of the invention or the scope of the claims.

What is claimed is:

1. In a method of webbing a rotary printing press having associated therewith a printing unit, web leading rollers, compensator rollers and a former, the steps which include leading a length of tape from the said printing unit and around the web leading rollers and compensator rollers comprising the web path to the former, aligning certain registration marks on the tape with certain reference marks on the printing unit and former respectively, to thereby establish the approximate length for the web between the reference marks, attaching the end of the tape at the printing unit to a paper web to be printed by the printing unit, and then pulling in the tape to pull in the web through the web path to the former.

2. In a method of webbing a rotary printing press having associated therewith a printing unit, web leading rollers, compensator rollers and a former, the steps which include leading a length of tape from the said printing unit and around the web leading rollers and compensator rollers comprising the web path to the former, aligning certain registration marks on the tape with certain reference marks on the printing unit and former respectively, to thereby establish the approximate length for the web between the reference marks, adjusting the compensator rollers to take up any slack in the tape, attaching the end of the tape at the printing unit to a paper web to be printed by the printing unit, and then pulling in the tape to pull in the web through the web path to the former.

3. In a method of webbing a rotary printing press of the type including plate and impression cylinders, web leading rollers, compensator rollers and a former, the steps which include leading a length of tape from the impression cylinder around the web leading rollers and compensator rollers comprising the web path to the former, aligning certain registration marks on the tape with a reference mark on the impression cylinder and on the former, respectively, securing the tape at the impression cylinder and at the former in said aligned relation, adjusting the compensator rollers to take up any slack in the tape, attaching the end of the tape to a paper web to be printed by the press, and then pulling in the tape to pull in the web through the web path to the former.

4. In a method of webbing a rotary printing press having associated therewith a printing unit, web leading rollers, compensator rollers, and cutting and folding mechanism, the steps which include leading a length of tape from the said printing unit and around the web leading rollers and compensator rollers comprising the web path to the cutting and folding mechanism, aligning certain registration marks on the tape with certain refer-

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ence marks on the printing unit and on the cutting and folding mechanism, respectively, to thereby establish the approximate length for the web between the reference marks, attaching the end of the tape at the printing unit to a paper web to be printed by the printing unit, and then pulling in the tape to pull in the web through the web path to the cutting and folding mechanism.

5. In a method of webbing a rotary printing press as defined by claim 4 including the additional step of adjusting the compensator rollers after the registration marks on the tape have been aligned with the reference marks on the printing unit and on the cutting and folding mechanism, respectively, whereby to take up any slack in the tape.

6. In a method of webbing a rotary printing press of the type including plate and impression cylinders, web leading rollers, compensator rollers, and a cutting and folding mechanism, the steps which include leading a length of tape from the impression cylinder around the web leading rollers and compensator rollers comprising the web path to the cutting and folding mechanism, aligning certain registration marks on the tape with a reference mark on the impression cylinder and on the cutting and folding mechanism, respectively, securing the tape at the impression cylinder and at the cutting and folding mechanism in said aligned relation, adjusting the compensator rollers to take up any slack in the tape, attaching the end of the tape to a paper web to be printed by the press, and then pulling in the tape to pull in the web through the web path to the cutting and folding mechanism.

7. In a method of establishing a variety of web paths from a printing unit to the severing and folding device of a rotary printing press prior to starting up the press, said printing unit having associated therewith web leading rollers, compensator rollers and a severing and folding device, the steps which include leading a length of tape from the said printing unit and around the web leading rollers and compensator rollers comprising the selected web path to the severing and folding device, adjusting the compensator rollers to running position to establish length of web for desired cut-off location, attaching the end of the tape at the printing unit to a paper web which is to be printed by the printing unit, and then pulling in the tape to pull in the paper web through the web path to the severing and folding device.

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